

CASE SUMMARY

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# Roquette America

## ROQUETTE AMERICA, INC. Keokuk, Iowa (Lee County)

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### The Company

Roquette America, Inc. is a wholly owned subsidiary of Roquette Freres. The plant in Keokuk produces sorbitol, MALTISORB®, and other corn products. There are 400 employees at the facility.

### Project Background

Roquette America, Inc. has an energy team that is responsible for finding ways to reduce energy consumption through conservation and maintenance projects. The Iowa Department of Natural Resources, Waste Reduction Assistance Program (WRAP) conducted an assessment of the facility in February 2001.

### Incentives to Change

The company wanted to study and propose implementation of selected WRAP audit recommendations to improve the efficient usage of natural resources, evaluate selected waste streams, and identify wastewater effluent reuse options following tertiary treatment methods. Recently, Roquette America, Inc. developed an Operation Critical for 2001. The critical environmental goal is "Continuous improvement in environmental performance resulting in reduced business risk, improved public and regulatory perception, and being prepared for future growth opportunities."

### Results

The first opportunity that was implemented was the reduction of a hazardous waste that was being utilized in the testing of influent and effluent wastewater. Purchasing a Total Carbon Analysis (TC) analysis machine, which eliminated Chemical Oxygen Demand (COD) vial waste, saved the company over \$13,000 in annual hazardous waste disposal costs.

The intern researched the potential energy savings of installing an anaerobic digester. A product of anaerobic respiration is methane. Approximately  $600 \times 10^6$  Btu per day could be generated at a cost of \$5.00 per million Btu. This is

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worth \$1.07 million per year. This biogas could be utilized in the process as an energy source for the boilers. There is also a \$233,000 electrical savings related to the elimination of one of the 500 horsepower blowers.

Approximately 2,000 gallons per minute of treated effluent water is released into the Mississippi River. If a wastewater treatment project were implemented, the effluent water would be demineralized, microbial filtered, and treated in a reverse osmosis process prior to being added back to the boilers. Recycling the effluent wastewater would save \$591,300 in city water costs, with a pay back period of 3 years.

The intern also evaluated air losses in the compressor system. The intern did not quantify the losses, but it was estimated that a 25% savings could be realized if losses were eliminated. This represents a 3,431,000 kWh savings annually and would make it possible to shut off one of the active air compressors. To eliminate the air pressure leaks, Roquette America could purchase an ultrasonic leak detector for periodical maintenance inspections or use a technical assistance provider such as Alliant. If a leak detection system were put in place, the savings from capturing lost air pressure is \$135,000 with a payback period of 0.3 years. In addition, by reducing header pressure by 15 psi a savings of 1,029,000 kWh and \$40,000 annually could also be achieved.

Approximately 82,422 kWh could be saved if all the F40WW / ss electromagnetic ballasts and bulbs were changed to F32T8 / CW ballasts and bulbs. The energy company's rebate program could be utilized, resulting in annual savings of \$4,000.

**Total of all opportunities for this business:**

Pounds of solid waste diverted from landfill .....	<b>44,600 pounds per year</b>
Gallons of hazardous waste eliminated .....	<b>100 gallons per year</b>
KWH of energy saved .....	<b>11,395,363 KWH per year</b>
Gallons of water saved .....	<b>1.05 billion (recycled) gallons per year</b>